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AHU CONTROL KIT

Installation Manual

**Models: PRCKD20E
PRCKD40E**

IMPORTANT

- Please read this installation manual completely before installing the product.
- Installation work must be performed in accordance with the national wiring standards by authorized personnel only.
- Please retain this installation manual for future reference after reading it thoroughly.

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Safety Precautions

To prevent injury to the user or other people and property damage, the following instructions must be followed.

■ Incorrect operation due to ignoring instruction will cause harm or damage. The seriousness is classified by the following indications.



WARNING This symbol indicates the possibility of death or serious injury.



CAUTION This symbol indicates the possibility of injury or damage.

■ Meanings of symbols used in this manual are as shown below.



Be sure not to do.



Be sure to follow the instruction.



WARNING

■ Installation

System air conditioner can only be installed by specialized service provider with air condition installation certifications.

- Inappropriate installation can cause leakage, fire and electric shock.

When moving or reinstalling the air conditioner, please contact the MULTI V™ AHU installation service provider.

- Inappropriate installation can cause leakage, fire and electric shock.

Do not disassemble, repair or reconfigure the product arbitrarily.

- It can cause a fire and electric shock.

Do not store or use flammable gas or volatile substance near the air conditioner.

- It can cause a fire or problem to the product.

Do not mix existing R22 pipe and installation products for the installation.

- When you mix the mineral oil of R22 and R410A oil (PVE), it can decompose with water to cause problems to the product.

Do not mix other refrigerant with the designated refrigerant (R410A) during the installation or moving the air conditioner.

- When other refrigerant is mixed with the original refrigerant, it can cause a problem in the refrigerant cycle and damage the product.

Do not use the existing manifold gauge for R22 refrigerant.

- To charge the refrigerant stably, always use the manifold gauge for high pressure (R410A).

Install the air conditioner at a designated location using the designated material.

- Heat exchanger inlet/outlet pipe location.

■ Operation

Make sure that water does not get inside the product (Controller). Especially, do not clean the product with water.

- It can cause electric shock and problems.

When the air conditioner is submersed in water, always consult MULTI V™ AHU installation service provider.

- It can cause a fire and electric shock.

Do not keep any heating devices near the product.

- It can cause a fire.

Do not install the air conditioner outdoors.

- If installed outdoor inevitably, consult MultiV™ AHU installation service provider.

Do not let any worker or user climb on top of the product.

- The person can get seriously injured.



■ Installation

After the product installation and repair, always check for gas leakage.

- It can cause problems in the product.

When installing the product, always make sure to level to the product.

- It can cause vibration and leakage.

Do not install the product where flammable gas leaks.

- It can cause a fire and problems to the product.

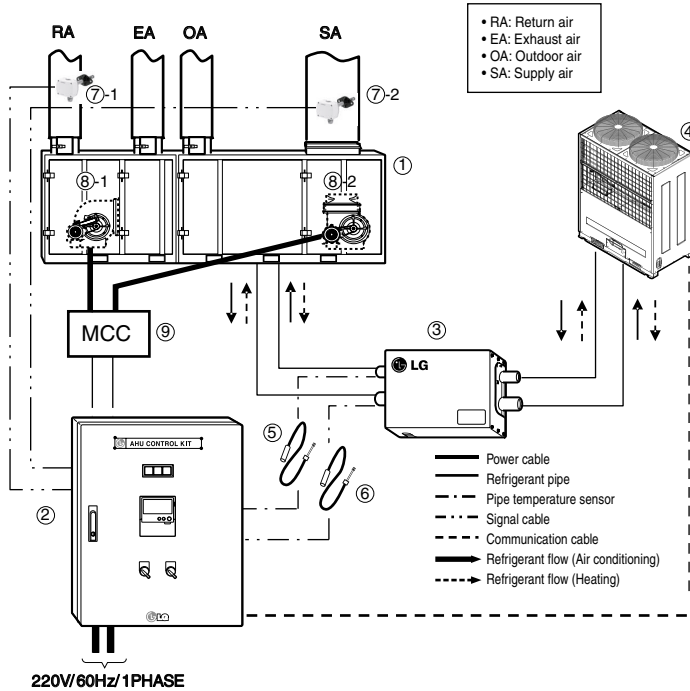
■ Operation

If the refrigerant leaked while installing the product, always ventilate the room.

- The refrigerant gas can react with the fire to turn into hazardous gas to cause an accident.

Installation configuration

Installation configuration diagram



Installation components



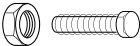


No.	Name	Remarks
①	Air Handling Unit	-
②	CONTROL KIT	PRCKD20E / PRCKD40E
③	EXPANSION KIT	PATX13A0E/20A0E/25A0E/35A0E
④	Outdoor unit	Multi V
⑤	Pipe temperature sensor IN	Sensor: Ø5, Length: 5m, Cable color: Black
⑥	Pipe temperature sensor OUT	Sensor: Ø7, Length: 5m, Cable color: Red
⑦-1	Temperature sensor RA	-50~50°C/ AC 24V / DC 0~10V
⑦-2	Temperature sensor SA	-50~50°C/ AC 24V / DC 0~10V
⑧-1	Return Fan	-
⑧-2	Supply Fan	-
⑨	MCC	MCC

Precaution during installation configuration

1. MCC is the construction of the equipment by the equipment provider and must be separately discussed before the installation.
2. Temperature or Temperature/Humidity sensor must be installed on the SA/RA duct for normal operation.

Supplies

Basic parts supplied

	CONTROL KIT	Wired remote controller	Installation bolt/nut	Installation manual	User manual
Model name					
PRCKD20E	- Quantity: 1EA - Maximum number of outdoor units that can be connected: - Quantity: 4EA	- Quantity: 1EA	- Bolt quantity: 4EA Specification: M10/70mm - Nut quantity: 4EA Specification: M10	- Quantity: 1EA	- Quantity: 1EA
PRCKD40EE	- Quantity: 1EA - Maximum number of outdoor units that can be connected: - Quantity: 8EA	- Quantity: 1EA			

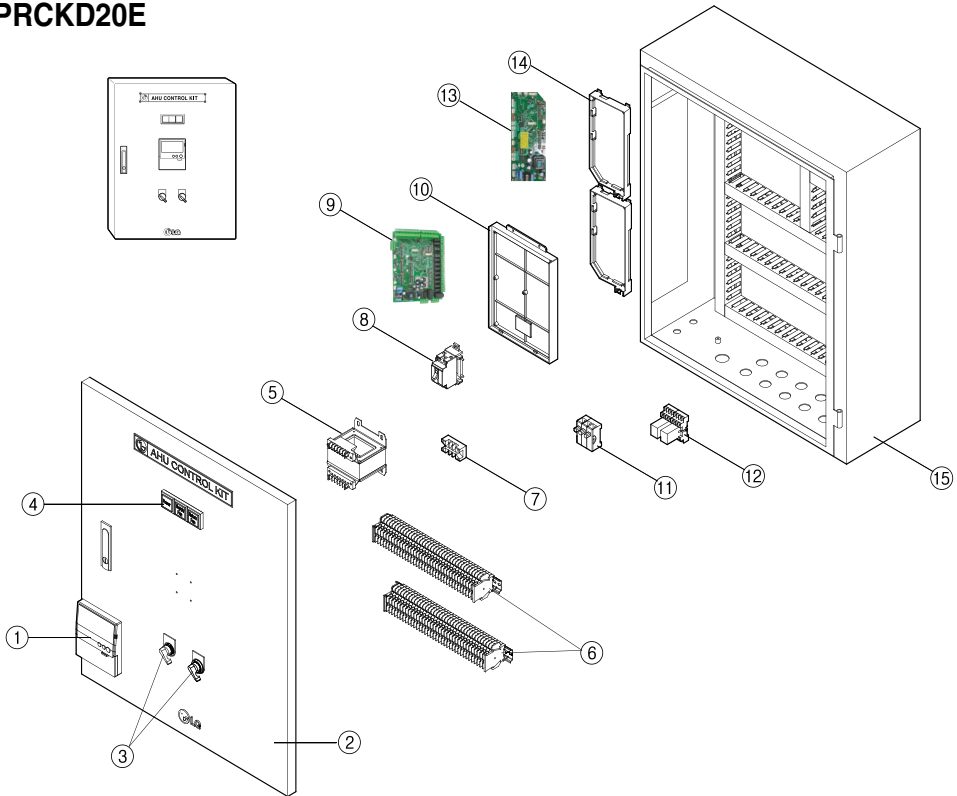
Sensor (Separately sold)

- To operate the product, you must separately purchase and install the following temperature or temperature/humidity sensor.
- Separate specification and installation location for the applied sensor can be checked from ‘AHU sensor specification’.

Item	Specification
Temperature sensor	- Power: AC24V - Output signal: DC 0~10V - Temperature range: -50~50°C
Temperature/ Humidity sensor	- Power: AC24V - Output signal: DC 0~10V - Temperature range: -40~70°C - Humidity range: 0~95%RH

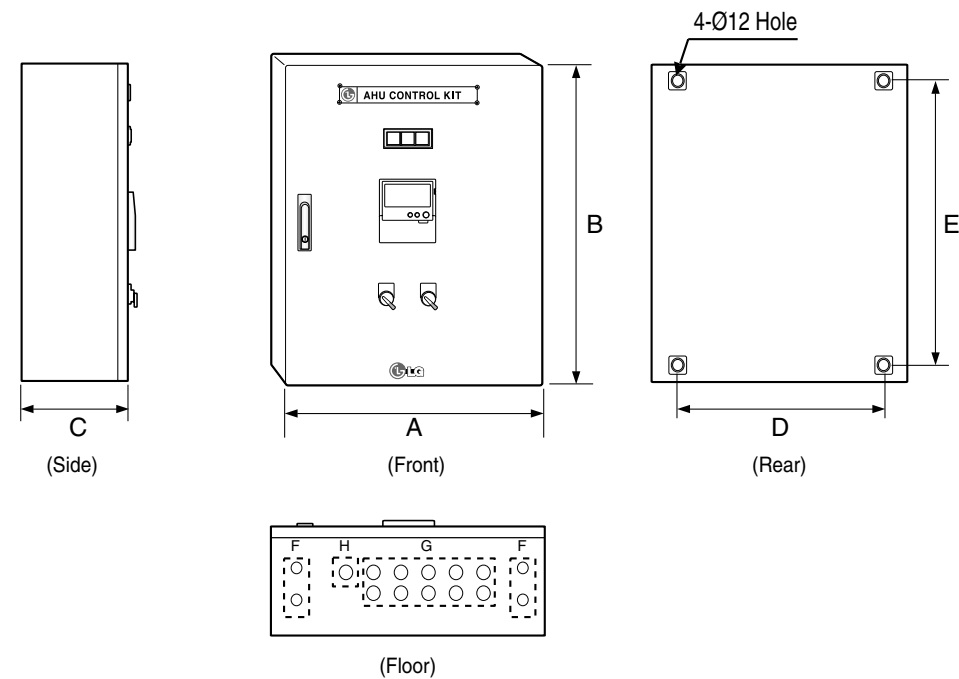
Product configuration

PRCKD20E



No.	Part name	Specification	Quantity	No.	Part name	Specification	Quantity
①	Wired remote controller	-	1	⑨	AHU Controller	-	1
②	Door	1.6T	1	⑩	Controller Case	-	1
③	Selection switch	ON/OFF	2	⑪	Fuse	250V, 5A	3
④	Lamp	Power/SA/RA	3	⑫	Relay	5A	2
⑤	Transformer	Input: 220V Output: 24V Capacity: 100VA	1	⑬	Communication PCB	-	2(4)
⑥	Terminal block #1	15A * 1.25mm ²	2	⑭	Communication PCB case	-	2(4)
⑦	Terminal block #2	20A * 1.25mm ²	1	⑮	Control box	1.6T	1
⑧	Wiring circuit breaker	15A	1			-	

* () refers to the quantity applied to the PRCKD40E model.



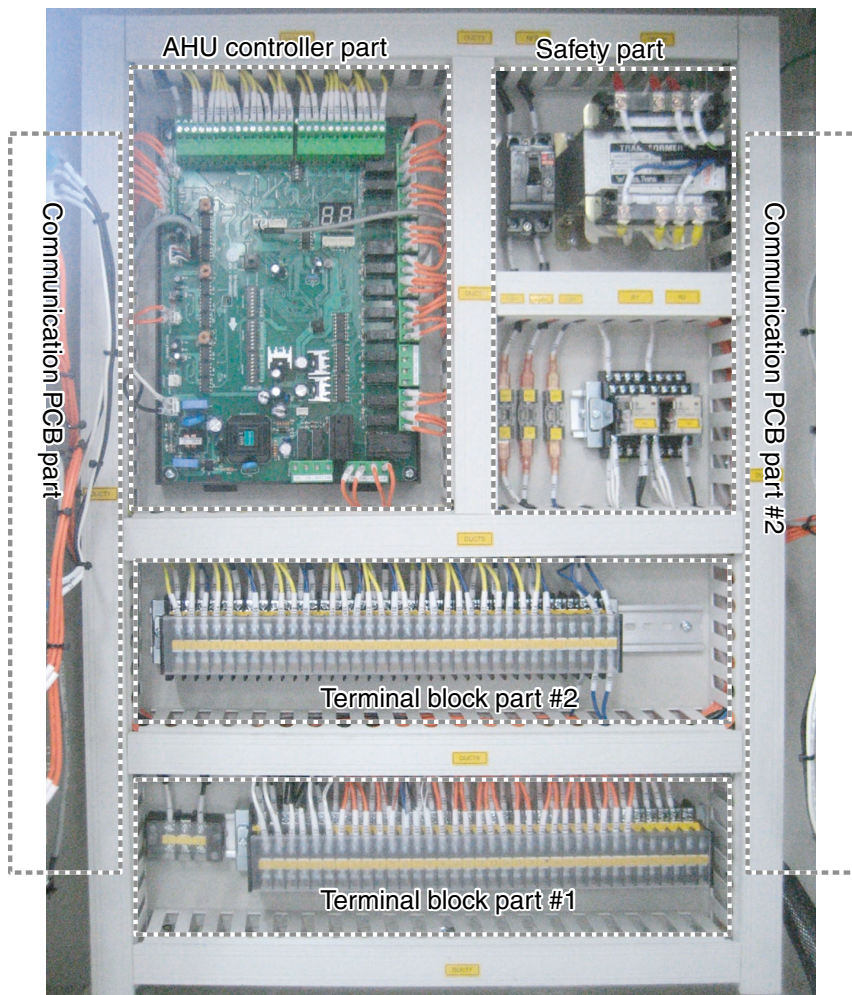
		PRCKD20E / PRCKD40E	Remarks
A (mm)		600	Length
B (mm)		750	Height
C (mm)		280	Width
D (mm)		500	Hole connecting to AHU
E (mm)		650	
F		4-Ø16 Hole	Pipe sensor connector
G		10-Ø25 Hole	Sensor/Communication cable connector
H		Ø30 Hole	Power cable connector
Weight	Product	43.5	Product weight
	Packaging	48	Weight after packaging

■ Depending on the installation personnel, the cable drawn to the F/G/H hole can be changed, and use the flexible pipe and connector that fits each hole.

Wiring diagram

Part diagram

PRCKD40E

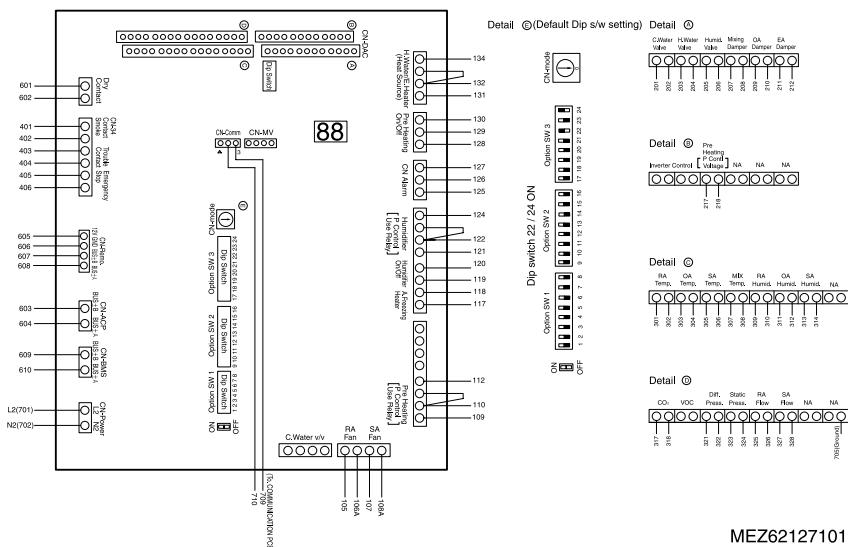


(Inside product)

■ Communication PCB #1 part is not attached to the PRCKD20E model.

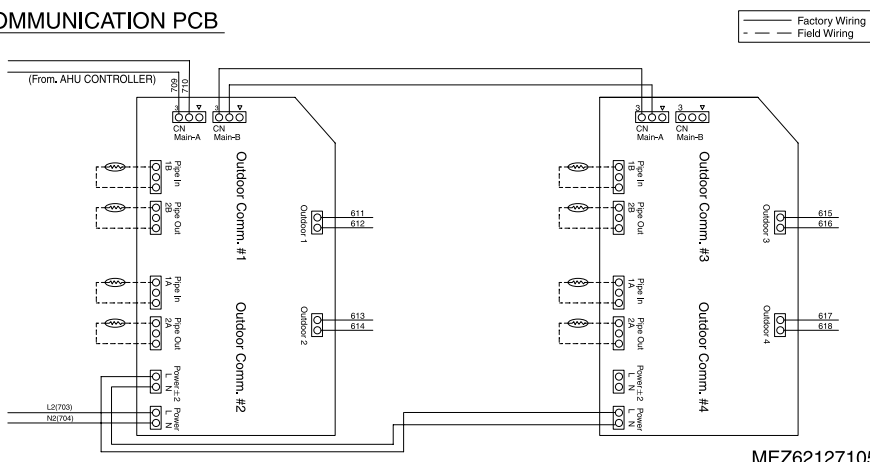
AHU controller part

AHU CONTROLLER



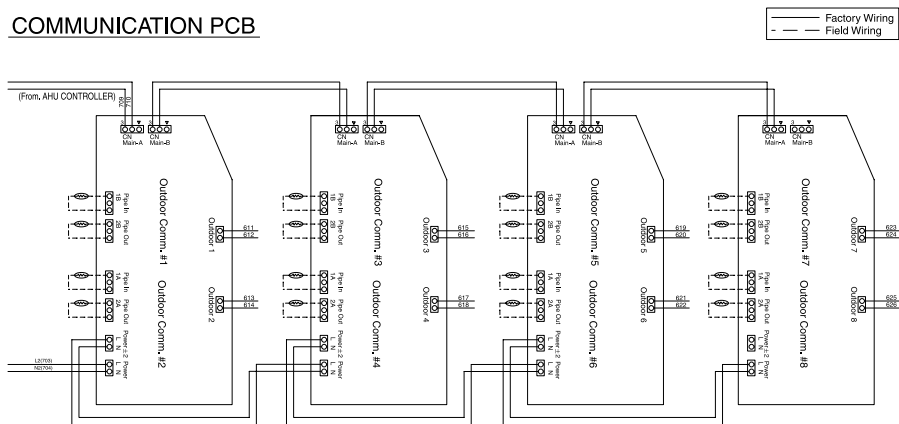
Communication PCB part (PRCKD20E)

COMMUNICATION PCB



Communication PCB part (PRCKD40E)

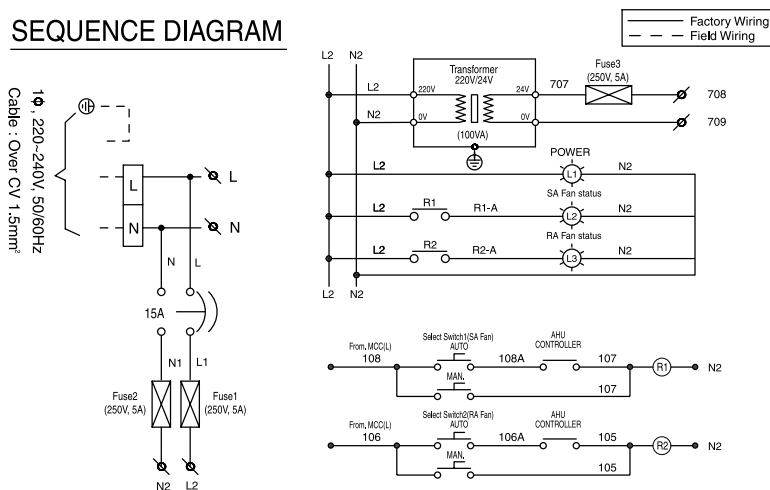
COMMUNICATION PCB



MEZ62127106

Safety part (Transformer, wiring circuit breaker)

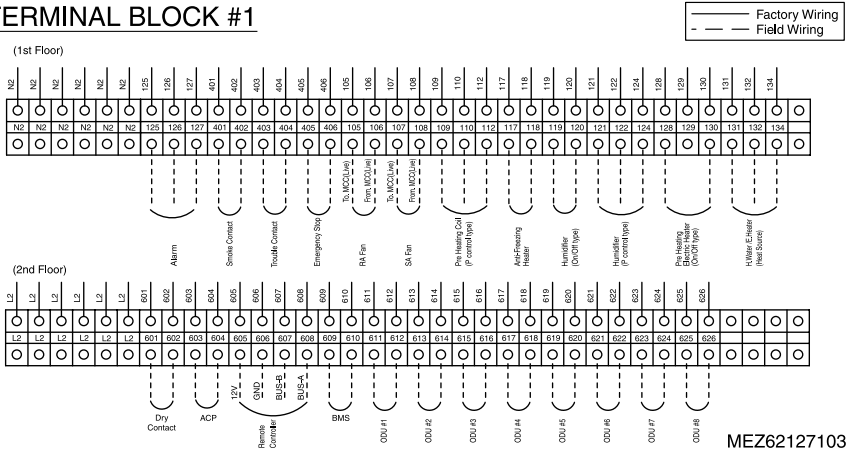
SEQUENCE DIAGRAM



MEZ62127102

Terminal block part #1

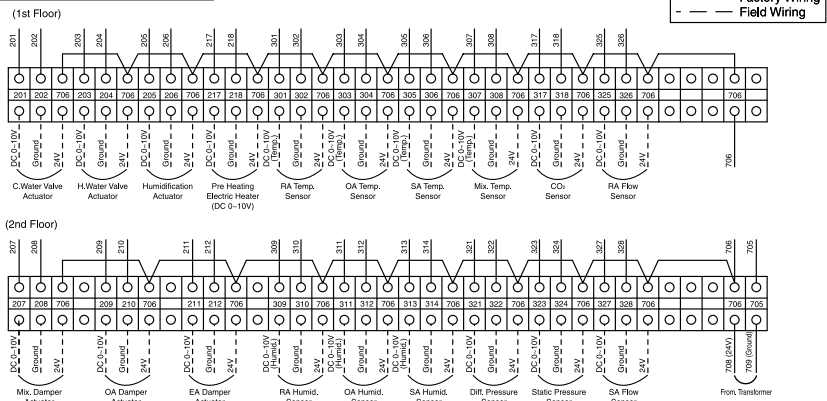
TERMINAL BLOCK #1



MEZ62127103

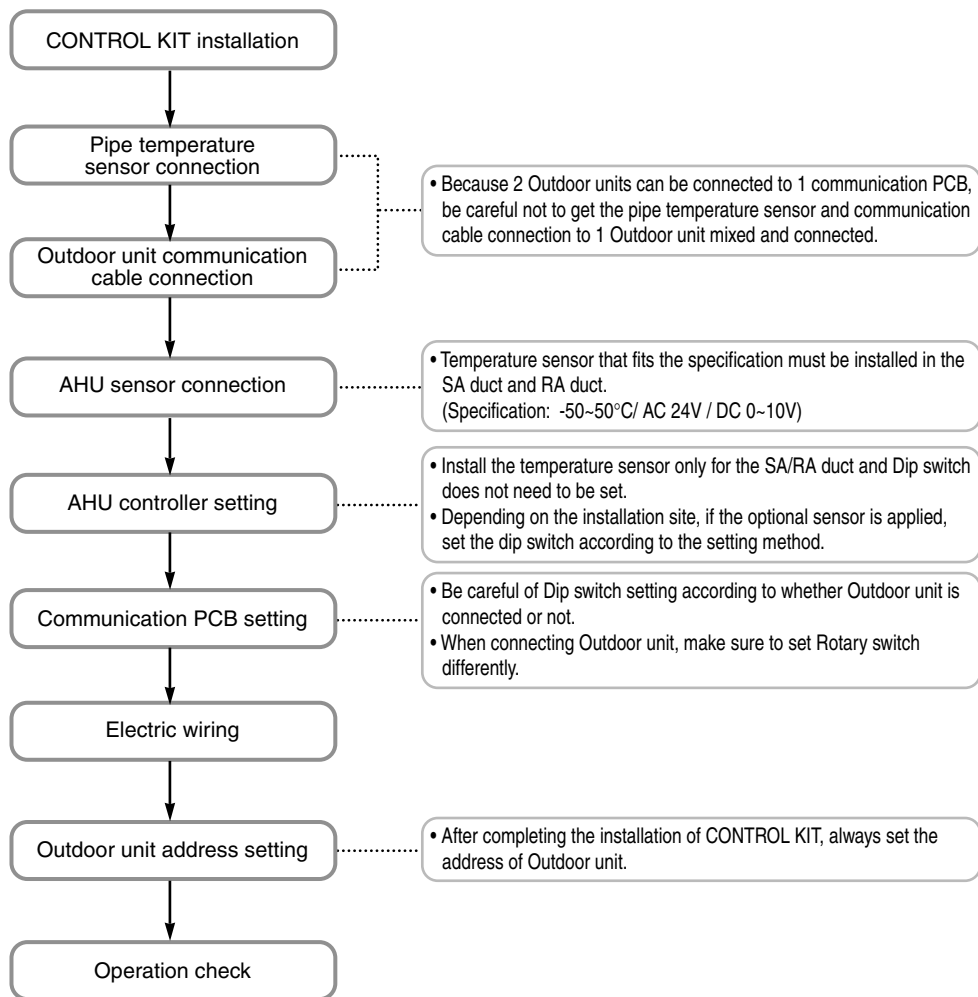
Terminal block part #2

TERMINAL BLOCK #2



MEZ62127104

Installation flowchart

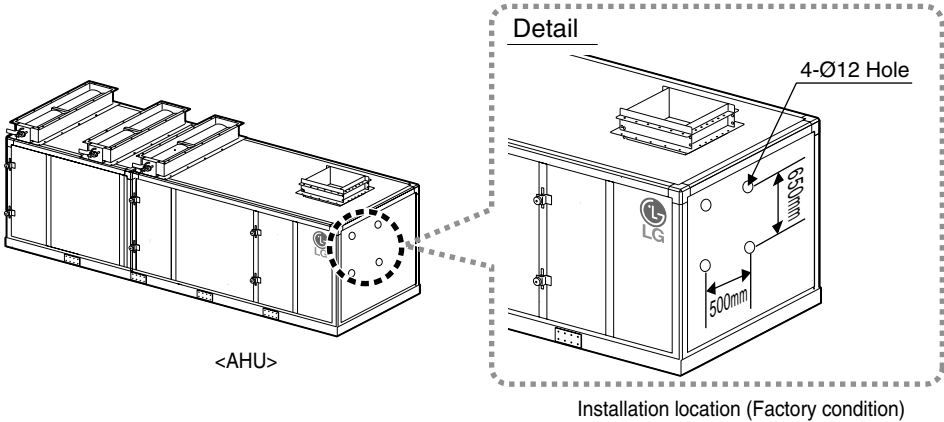


■ This order can change depending on the construction site. Therefore please read the installation manual prior to the applicable work.

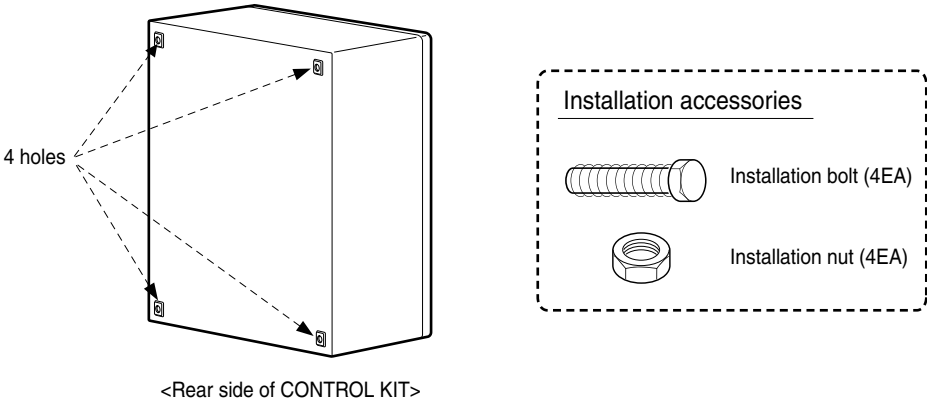
CONTROL KIT Installation

Product installation location check

1. Check the location to install CONTROL KIT from the AHU product.



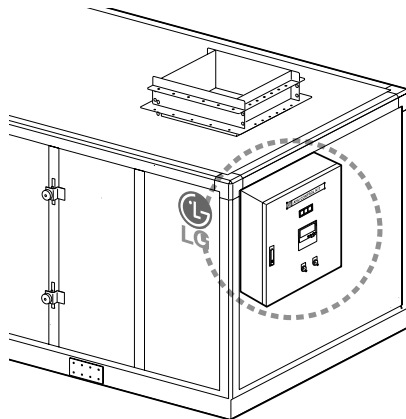
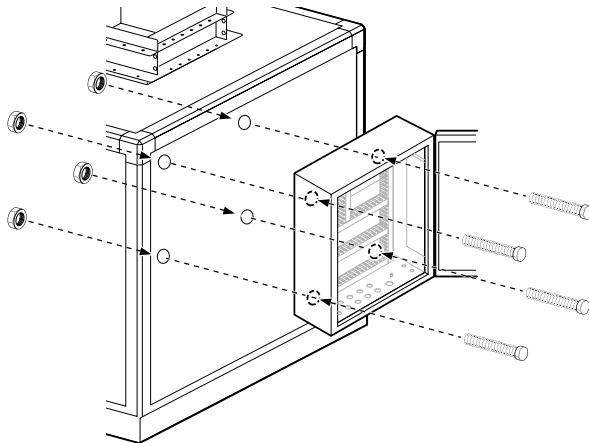
2. Check location of the hole on the rear side of CONTROL KIT and check whether accessories exist for the installation.



■ The installation location of CONTROL KIT is coordinated prior to the AHU factory delivery and the holes are drilled from the factory before the product is shipped.

Product installation

1. Align the fixating hole on the side of AHU with the hole on the kit, and tighten the holes using the bolt and nut included.



<Installation complete>

CAUTION

- Do not install the product by yourself.
- After installing the product, check whether it is fixed well.

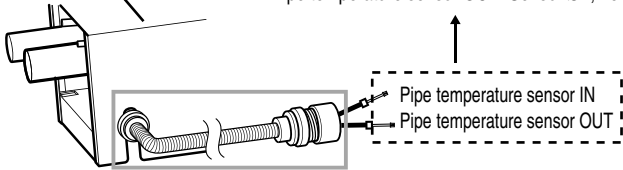
Pipe temperature sensor connection

Pipe temperature sensor connection

1. Check the IN/OUT of the pipe temperature sensor connected to EXPANSION KIT.

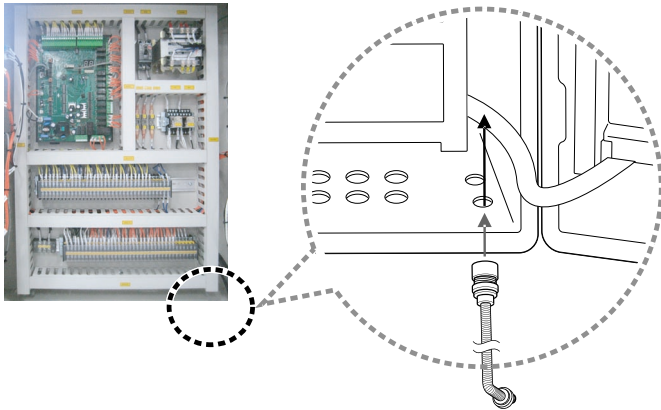
EXPANSION KIT
(PATX13A0E/20A0E/25A0E/35A0E)

- Pipe temperature sensor IN: Sensor Ø5, Length 5m, Cable color Black
- Pipe temperature sensor OUT: Sensor Ø7, Length 5m, Cable color Red

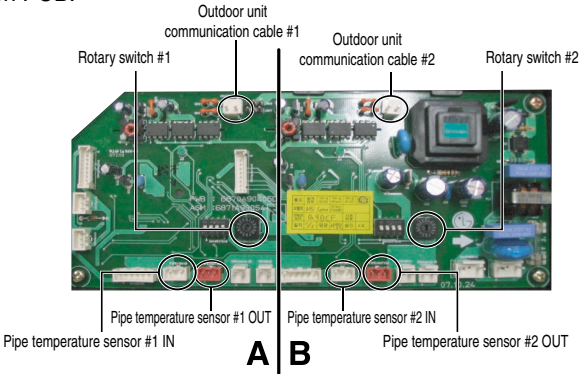


Flexible pipe and connector: Ø16(Supplied on site)

2. Connect the flexible pipe and the connector (Ø16, Installed on site) included from EXPANSION KIT to CONTROL KIT.



3. Classify the IN/OUT of the pipe temperature sensor, and connect to the connector on the communication PCB.

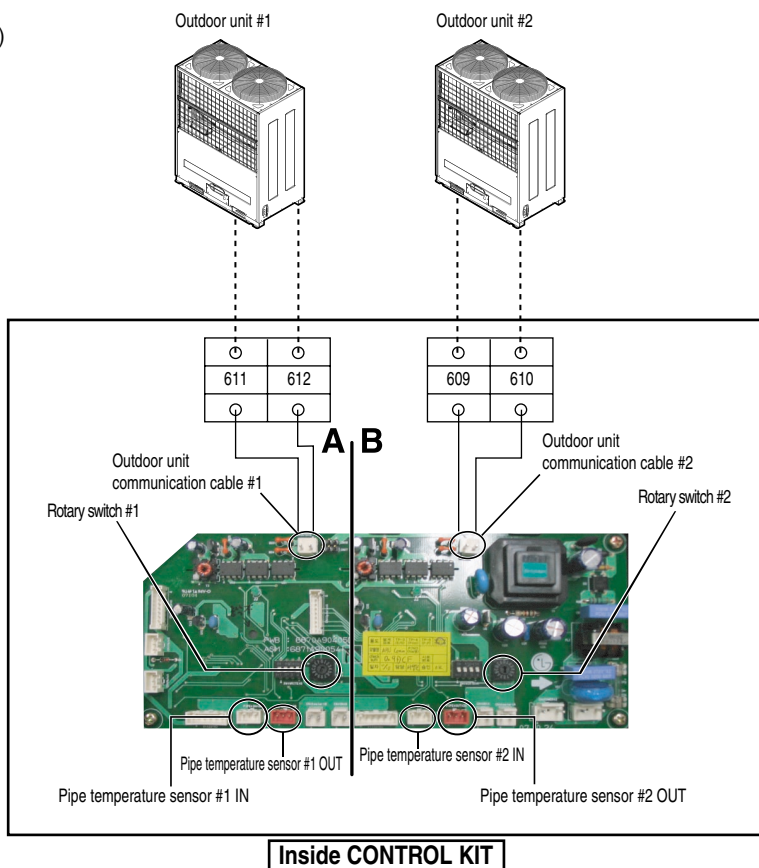


Outdoor communication cable connection

Communication cable connection

1. Communication cable specification (Between Outdoor unit and CONTROL KIT)
 - Type: 2 shielded wires
 - Insulation material: PVC
 - Maximum possible distance : 1000m or less
 - Diameter: CV 1.25mm² or above
 - Maximum permitted temperature: 60°C
2. The communication connection between Outdoor unit and CONTROL KIT is as follows.
Refer to the wiring diagram for details to proceed.

Example)

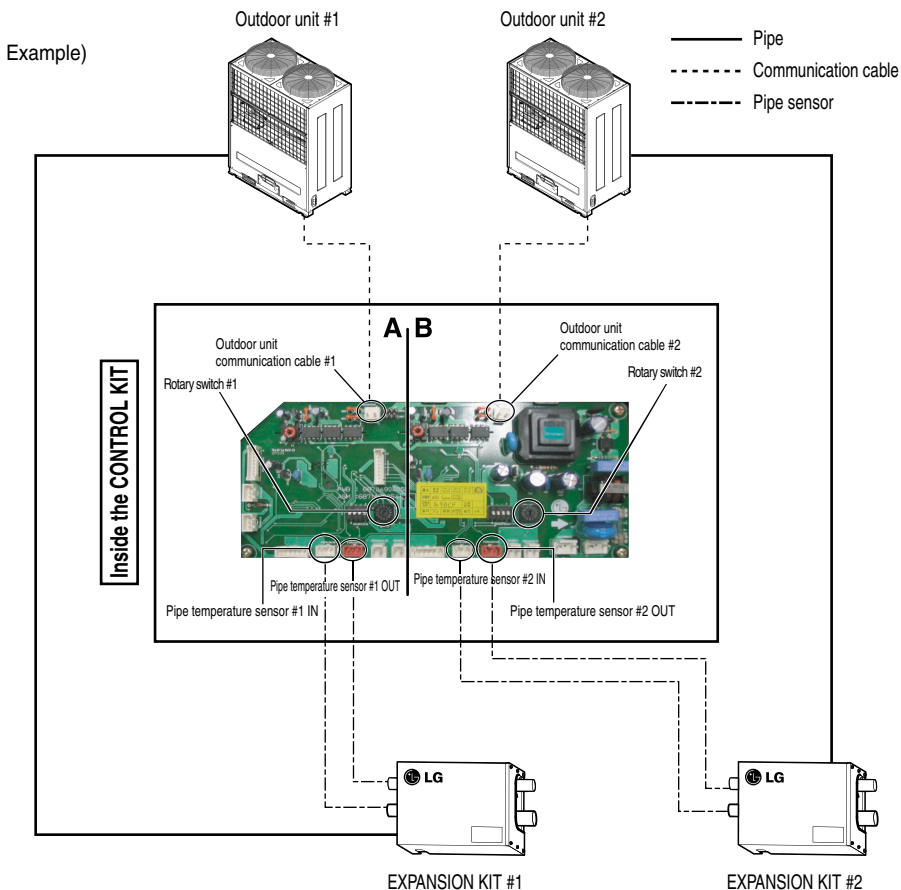


- Connect EXPANSION KIT #1, Outdoor unit #1, Outdoor unit communication cable #1, pipe temperature sensor IN/OUT #1 to the same 'A' part.
- For detail connection of EXPANSION KIT, refer to EXPANSION KIT manual.

Precaution

Pipe temperature sensor connection

- Because 1 communication PCB can be connected to 2 EXPANSION KIT and Outdoor units, be careful not to mix the pipe temperature sensor and communication cable.



- Connect EXPANSION KIT #1, Outdoor unit #1, Outdoor unit communication cable #1, pipe temperature sensor IN/OUT #1 to the same 'A' part.
- For detail connection of EXPANSION KIT, refer to EXPANSION KIT manual.

Outdoor unit communication cable connection

- If the power cable and the communication cable are connected in parallel, it can cause malfunction to the system by signal interference from combined effect from static electric and electronic system. When the communication cable is installed with the indoor unit power cable, clearance of at least 50mm must be secured between the two.
- Clearance with power cable from other system

Power cable current capacity		Clearance
100V or above	10A	300 mm
	50A	500 mm
	100A	1000 mm
	Over 100A	1500 mm

1. This is calculated based on the assumption of cable length of 100m running parallel. If the cable runs over 100m, additional length must be calculated in proportion.
 2. If the waveform of the power is continuously distorted even after maintaining the above clearance distance, try extending the clearance distance.
- If several cables are put in the transmission cable or tied as one, the following must be considered.
- The power cable and the communication cable cannot be put together in the transmission cable.
 - The power cable and the communication cable cannot be tied together.

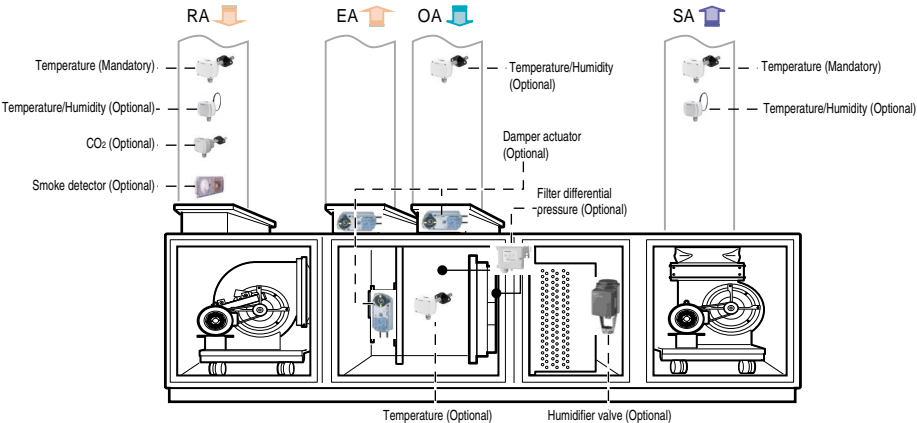
AHU sensor specification

Sensor/Load specification

• The AHU applied sensor must comply with the following specification table.

Item	Specification	Remarks
Damper actuator	- Power : AC 24V - Input signal : DC 0~10V - Torque : 15Nm - Operating time : 150 seconds - Rotating angle : 90°	Optional
Temperature/Humidity sensor	- Power : AC 24V - Output signal : DC 0~10V - Temperature range : -40~70°C - Humidity range : 0~95%RH	
Temperature sensor	- Power : AC 24V - Output signal : DC 0~10V - Temperature range : -50~50°C	Mandatory
Filter differential pressure sensor	- Power : AC 24V - Output signal : DC 0~10V - 0~1,000 Pa	Optional
CO ₂ sensor	- Power : AC 24V - Output signal : DC 0~10V - 0~2,000 ppm	
Smoke detector sensor	- Power : AC 24V - Type: Contact point type	

Sensor installation location



■ If the sensors are not installed in the locations shown above, the AHU may not work or malfunction.
■ You must install the temperature or temperature/humidity sensor in the SA/RA duct.
If not installed, it can cause an error in AHU and may not work.

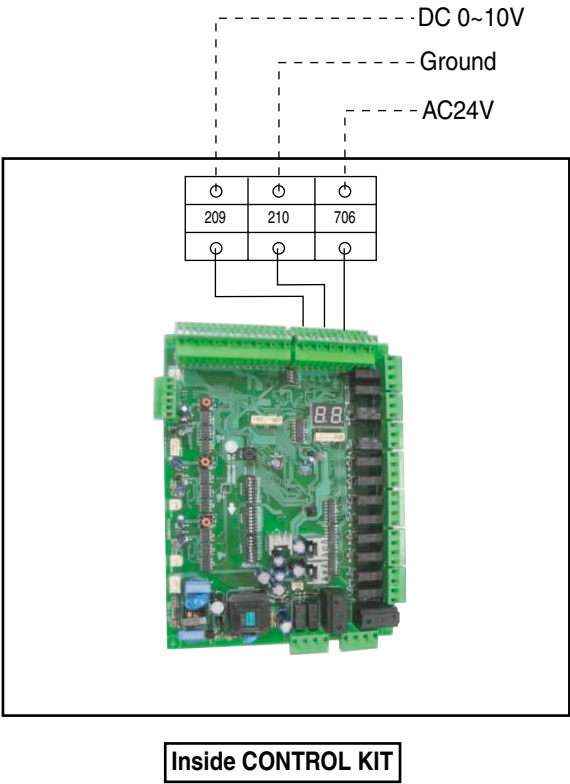
AHU sensor connection

Sensor/Load wiring

1. Damper actuator (Optional)

Item	Specification	Remarks
Damper actuator	<ul style="list-style-type: none">- Power : AC 24V- Input signal : DC 0~10V- Torque : 15Nm- Operating time : 150 seconds- Rotating angle : 90°	Optional

Example) OA damper actuator wiring

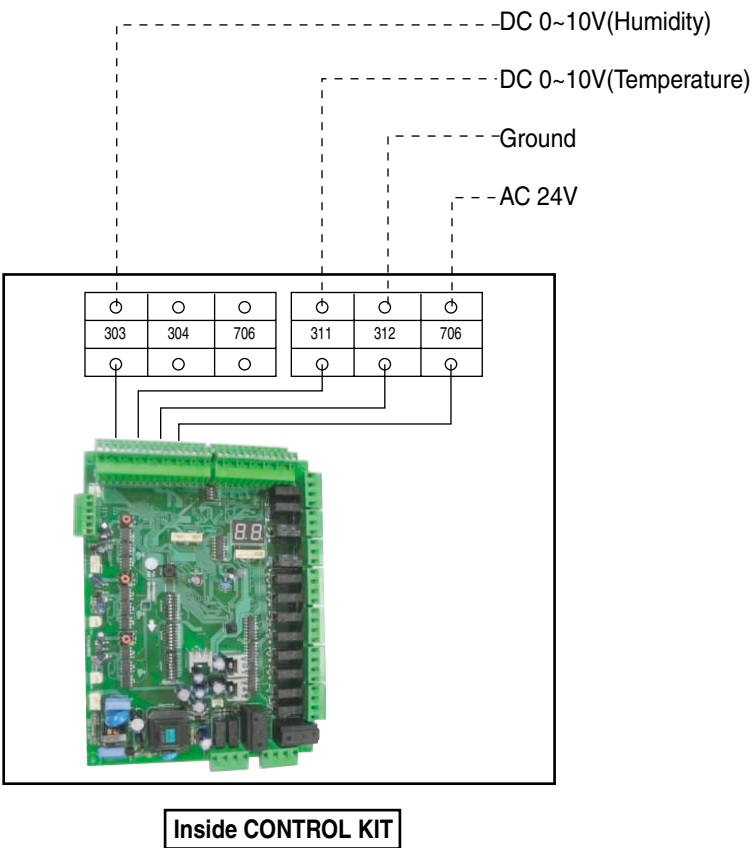


1. For details on installation of damper actuator, refer to the manual included with the damper actuator when purchased.
2. All wirings must be finished with flexible pipe.

2. Temperature/Humidity sensor (Optional)

Item	Specification	Remarks
Temperature/Humidity sensor	<div><div>- Power : AC 24V</div><div>- Output signal : DC 0~10V</div><div>- Temperature range : -40~70°C</div><div>- Humidity range : 0~95%RH</div></div>	Optional

Example) OA Temperature/Humidity sensor wiring



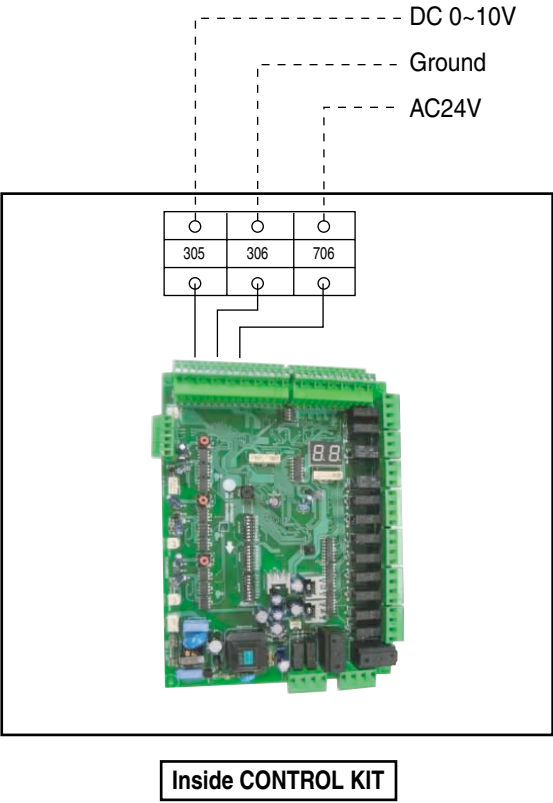
1. For details on installation of temperature/humidity sensor, refer to the manual included with the temperature/humidity sensor when purchased.

2. All wirings must be finished with flexible pipe.

3. Temperature sensor (Mandatory)

Item	Specification	Remarks
Temperature sensor	- Power : AC 24V - Output signal : DC 0~10V - Temperature range : -50~50°C	Mandatory

Example) SA temperature sensor wiring

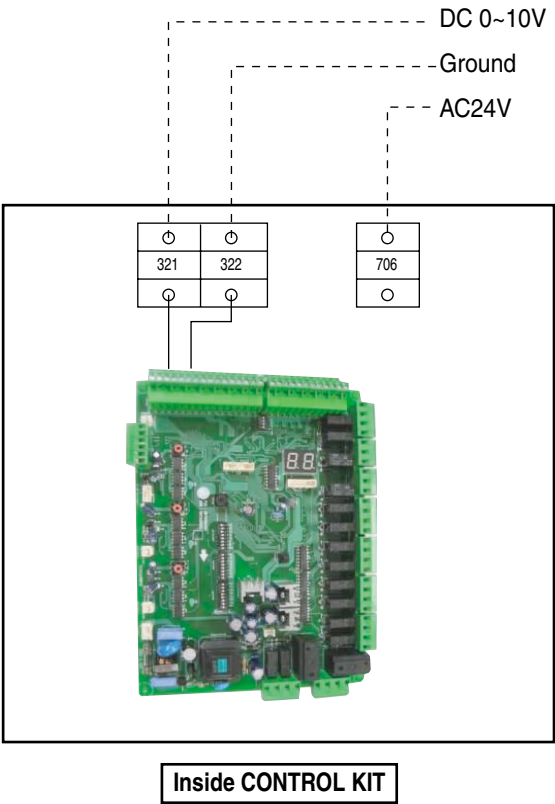


1. For details on installation of temperature sensor, refer to the manual included with the temperature sensor when purchased.
2. All wirings must be finished with flexible pipe.

4. Filter differential pressure sensor (Optional)

Item	Specification	Remarks
Filter differential pressure sensor	- Power : AC 24V - Output signal : DC 0~10V - 0~1,000 Pa	Optional

Example) Filter differential pressure sensor wiring

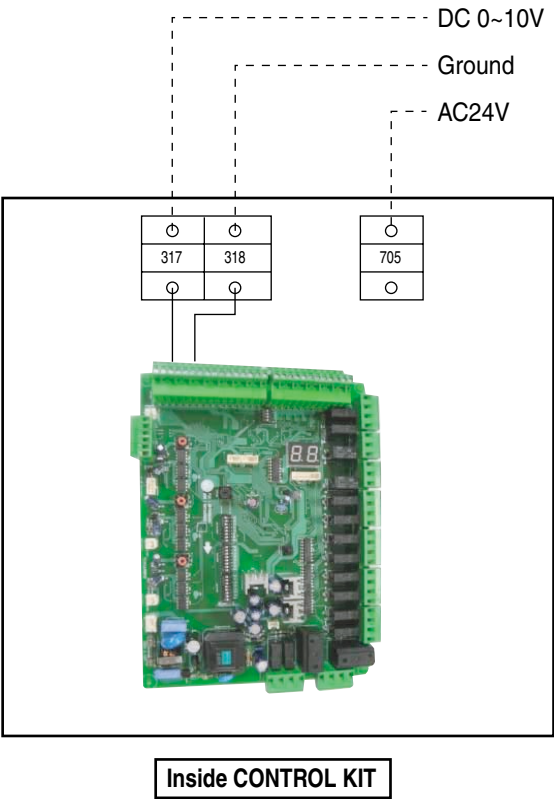


1. For details on installation of filter differential sensor, refer to the manual included with the filter differential sensor when purchased.
 2. All wirings must be finished with flexible pipe.

5. CO2 sensor (Optional)

Item	Specification	Remarks
CO ₂ sensor	<div>- Power : AC 24V - Output signal : DC 0~10V - 0~2,000 ppm</div>	Optional

Example) CO₂ sensor wiring



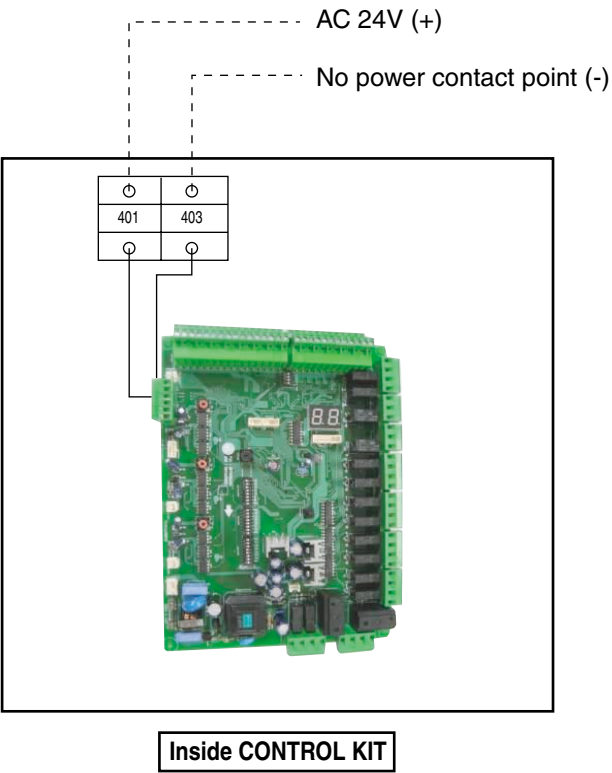
1. For details on installation of CO₂ sensor, refer to the manual included with the CO₂ sensor when purchased.

2. All wirings must be finished with flexible pipe.

6. Smoke detector sensor (Optional)

Item	Specification	Remarks
Smoke detector sensor	- Power : AC 24V - Type: Contact point type	Optional

Example) Smoke detector sensor wiring



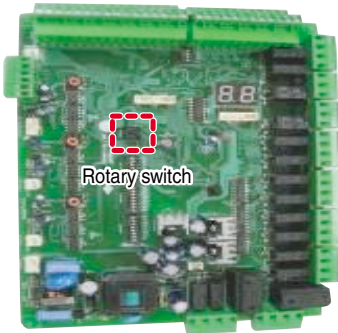
1. For details on installation of smoke detector sensor, refer to the manual included with the smoke detector sensor when purchased.
 2. All wirings must be finished with flexible pipe.

AHU controller setting

Rotary switch setting

- Set Rotary switch depending on the type of heat source applied to AHU.

Inside CONTROL KIT



(AHU controller)

Rotary switch setting



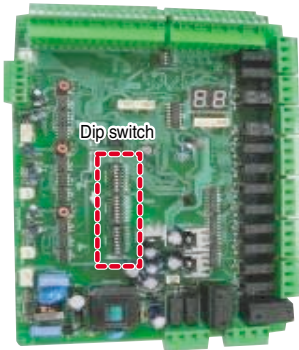
Factor delivery condition

Rotary switch	Applied heat source		Possible operating mode	Outdoor unit
	Cooling	Heating		
0	Air cooling type	Air cooling type	Cooling/Heating/Dehumidifier/Enthalphy/Ventilation	Cooling/Heating switch type (Air cooling type)
5	Air cooling type	-	Cooling/Dehumidifier/Enthalphy/Ventilation	Cooling only conditioning (Air cooling type)
7	Water cooling type	Water cooling type	Cooling/Heating/Dehumidifier/Enthalphy/Ventilation	Cooling/Heating switch type (Water cooling type)
F	-	-	Ventilation	-

Dip switch setting

- Check Dip switch

Inside CONTROL KIT

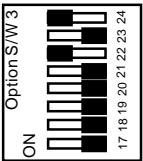


(AHU controller)

Dip switch



Factory delivery condition



ON	No. 22
	No. 24
OFF	No. 1 ~ No. 21
	23



CAUTION

- If the applicable Rotary/Dip switch is not correctly set, the product may not operate correctly.
- After operating Rotary/Dip switch, the power of the AHU controller must be reset to recognize the changed function.

2. Dip switch setting

No.	Switch name	On	Off	Function
1	AHU type (1)	100% Fresh Air type	Cooling/Heating type	ON: Dehumidifier/Auto ventilator disabled
2	OA temperature/humidity sensor	(Installed)	(Not installed)	OFF: Dehumidifier/Power save disabled
3	Mixing temperature sensor	(Installed)	(Not installed)	Heating is disabled for air conditioning/heating
4	RA temperature/humidity sensor	(Installed)	Temperature sensor	OFF: Dehumidifier/Humidifier/Power save disabled
5	SA temperature/humidity sensor	(Installed)	installed	OFF: Current humidity display disabled
6	CO ₂ sensor	(Installed)	(Not installed)	OFF: Auto ventilator disabled
7	RA/SA flow sensor	(Installed)	(Not installed)	OFF: RA fan inverter disabled
8	Filter differential pressure sensor	(Installed)	(Not installed)	ON: Sensor value is basis of filter clean notification
9	SA static pressure sensor	(Installed)	(Not installed)	OFF: SA fan inverter disabled
10	Humidifier	(Installed)	(Not installed)	OFF: Humidifier disabled
11	Preheat coil	(Installed)	(Not installed)	OFF: Preheat disabled
12	Preheat coil type	Electric heater	Hot water/Steam	-
13	-	-	-	-
14	RA fan type	-	Static speed	OFF: RA fan ON/OFF control
15	SA fan type	-	Static speed	OFF: SA fan ON/OFF control
16	AHU type (2)	Compact AHU	-	OFF: Follow AHU type (1) setting
17	OA damper smoke control mode	Full-Open	Full-Close	ON: Damper open when smoke is detected
18	EA damper smoke control mode	Full-Open	Full-Close	ON: Damper open when smoke is detected
19	Mixing damper smoke control mode	Full-Open	Full-Close	ON: Damper open when smoke is detected
20	RA fan smoke control mode	Operation	Stop	ON: Fan operation when smoke is detected
21	SA fan smoke control mode	Operation	Stop	ON: Fan operation when smoke is detected
22	-	Initialization mode	General mode	Factory default condition: ON
23	PCB Test	Test mode	General mode	Must be set to OFF at normal times
24	Flash Writing	General mode	Writing mode	Factory default condition: ON

1. You can set Dip switch 'No. 1' and 'No. 16' depending on the AHU type.

- When applying 100% Fresh Air type, set Dip switch 'No. 1' to ON.

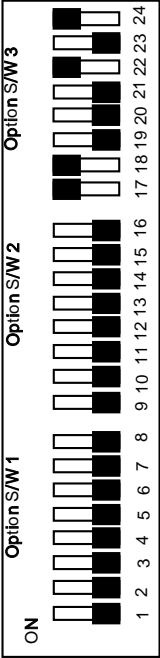
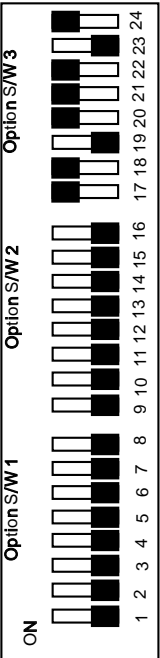
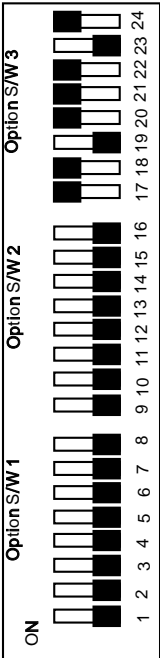
- When applying Compact, set Dip switch 'No. 16' to ON.

2. Depending on the necessary function, you must always attach the applied sensor before setting Dip switch.

3. Dip switch setting

No.	1	2	3	4
Dip switch setting				
Applied sensor	<ul style="list-style-type: none">- RA: Temperature sensor- SA: Temperature sensor	<ul style="list-style-type: none">- RA: Temperature/ Humidity sensor- SA: Temperature/ Humidity sensor	<ul style="list-style-type: none">- RA: Temperature/ Humidity sensor- SA: Temperature/ Humidity sensor- OA: Temperature/ Humidity sensor	<ul style="list-style-type: none">-RA: Temperature sensorCO2 sensor- SA: Temperature sensor
Function	<p>(Main function)</p> <ul style="list-style-type: none">- Cooling/Heating/ Ventilation	<p>(Main function)</p> <ul style="list-style-type: none">- Cooling/Heating/ Ventilation	<p>(Main function)</p> <ul style="list-style-type: none">- Cooling/Heating/ Ventilation- Enthalpy/ Dehumidifier	<p>(Main function)</p> <ul style="list-style-type: none">- Cooling/Heating/ Ventilation <p>(Additional function)</p> <ul style="list-style-type: none">- Auto ventilator
Remarks	Factory default condition Normal mode	Function to check current humidity	Enthalpy/Dehumidifier operation function	Auto ventilator operation function

No.	5	6	7	8
Dip switch setting				
Applied sensor	<ul style="list-style-type: none">- RA: Temperature sensor- SA: Temperature sensor- Filter front/rear: Filter differential pressure sensor	<ul style="list-style-type: none">- RA: Temperature/ Humidity sensor- SA: Temperature sensor- Humidifier: Humidifier valve	<ul style="list-style-type: none">- RA: Temperature sensor- SA: Temperature sensor- Mixing: Temperature sensor- Preheat coil: Electric heater	<ul style="list-style-type: none">- RA: Temperature sensor- SA: Temperature sensor- Mixing: Temperature sensor- Preheat coil: Hot water/Steam coil
Function	<p>(Main function)</p> <ul style="list-style-type: none">- Cooling/Heating/ Ventilation <p>(Additional function)</p> <ul style="list-style-type: none">- Filter replacement timing notification	<p>(Main function)</p> <ul style="list-style-type: none">- Cooling/Heating/ Ventilation <p>(Additional function)</p> <ul style="list-style-type: none">- Humidifier operation	<p>(Main function)</p> <ul style="list-style-type: none">- Cooling/Heating/ Ventilation	<p>(Main function)</p> <ul style="list-style-type: none">- Cooling/Heating/ Ventilation
Remarks	Pressure different display between filter front and end side	Additional operation control during heating mode	External load compensation during heating mode	External load compensation during heating mode

No.	9	10	11
Dip switch setting			
Applied sensor	<div>- RA: Temperature sensor</div> <div>Smoke detector sensor</div> <div>- SA: Temperature sensor</div>	<div>- RA: Temperature sensor</div> <div>Smoke detector sensor</div> <div>- SA: Temperature sensor</div>	<div>- RA: Temperature sensor</div> <div>Smoke detector sensor</div> <div>- SA: Temperature sensor</div>
Function	<div>(Main function)</div> <div>- Cooling/Heating/Ventilation</div> <div>(Smoke control function)</div> <div>- OA damper Full Open</div> <div>- EA damper Full Open</div> <div>- Mixing damper Full Open</div>	<div>(Main function)</div> <div>- Cooling/Heating/Ventilation</div> <div>(Smoke control function)</div> <div>- OA damper Full Open</div> <div>- EA damper Full Open</div> <div>- Mixing damper Full Open</div>	<div>(Main function)</div> <div>- Cooling/Heating/Ventilation</div> <div>(Smoke control function)</div> <div>- OA damper Full Open</div> <div>- EA damper Full Open</div> <div>- Mixing damper Full Open</div>
Remarks	Smoke control mode setting	Smoke control mode setting	Smoke control mode setting

Communication PCB setting

Rotary/Dip switch setting

Inside CONTROL KIT

Outdoor unit communication cable #1

Rotary switch #1

Pipe temperature sensor #1 OUT

Pipe temperature sensor #1 IN

Outdoor unit communication cable #2

Rotary switch #2

Pipe temperature sensor #2 IN

Pipe temperature sensor #2 OUT

(Communication PCB)

- Adjust Dip switch depending on the connection of Outdoor unit communication cable.
- Adjust Rotary switch of the part connected to Outdoor unit communication cable.

Outdoor unit communication cable connection	Outdoor unit communication cable not connected
<div><div>A</div><div></div><div>ON OFF</div><div>1 2 3 4</div></div>	<div><div>B</div><div></div><div>ON OFF</div><div>1 2 3 4</div></div>
Dip switch - No. 1 ~ No. 4 OFF	Dip switch - No. 4 ON

A

B

Rotary switch change of each part must be different.

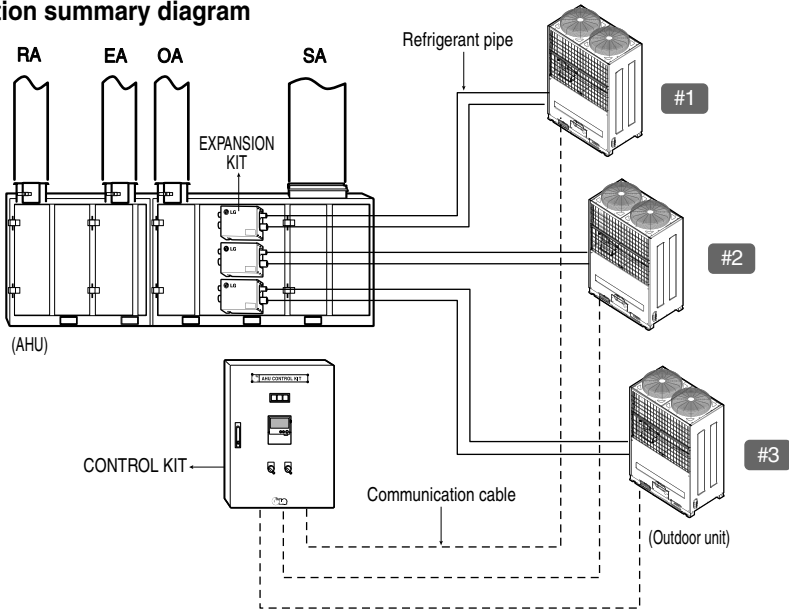
CAUTION

- 2 units of EXPANSION KIT and Outdoor units are connected to 1 unit of communication cable, and each must be classified and connected.
Ex) Connect all of EXPANSION KIT #1, Outdoor unit #1, Outdoor unit communication cable #1 and pipe temperature sensor IN/OUT #1 to one.
- The number of Rotary switch number of A and B part must be set differently.
- Rotary switch setting value is used as Outdoor unit address setting.

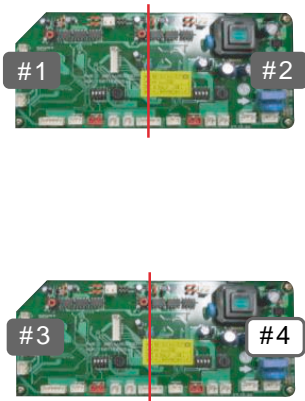
Rotary/Dip switch setting example

- Example of Rotary/Dip switch setting of communication cable when connecting 3 Outdoor units

Installation summary diagram



Communication PCB



Rotary/Dip switch setting

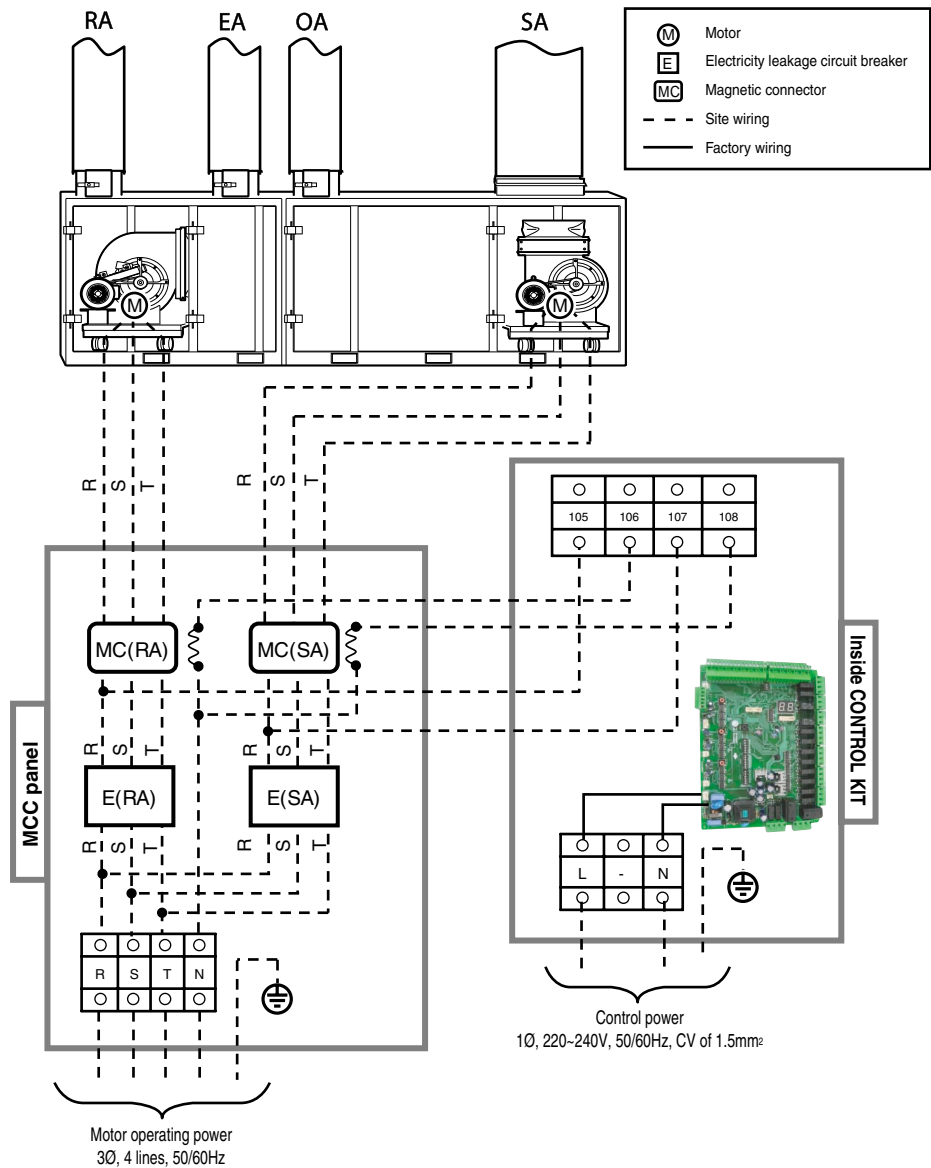
Outdoor unit	Dip switch	Rotary switch
#1	ON OFF 1 2 3 4	0 ↑
#2	ON OFF 1 2 3 4	1 ↗
#3	ON OFF 1 2 3 4	2 ↘
#4 Outdoor unit not connected	ON OFF 1 2 3 4	3 ↙

* Rotary switch setting value is used for setting the address of Outdoor unit.

Electric wiring work

Electric wiring

Ex) Electric wiring



Select and use the standard product (Power cable/Circuit breaker/Magnetic contactor)

Caution

1. For the regulation related to electric equipment and wiring, follow the regulation of technical standard of the government organization and the guideline of the electric power supplier.

WARNING

- For the electric work that requires special circuits according to the general regulation and this installation manual, always make sure it is done by a qualified technician. If the capacity of the power supply circuit is insufficient or defective, it can cause an electric shock or a fire.

2. Separately install the communication cable and the sensor signal cable of Outdoor unit, and make sure that they are not affected by the electric noise from the power cable. (Do not pass them through the same wire pipe.)

WARNING

- For the electric work that requires special circuits according to the general regulation and this installation manual, always make sure it is done by a qualified technician. If the capacity of the power supply circuit is insufficient or defective, it can cause an electric shock or a fire.

3. Always ground CONTROL KIT.

WARNING

- Always ground CONTROL KIT. Do not connect the grounding wire to a gas pipe, water pipe, lightning rod nor telephone grounding line. If the grounding is unstable, it can cause an electric shock.

4. Never connect the main power to the terminal of the communication cable and sensor signal cable. Doing so can burn the electric part and sensor.
5. Use the 2-line shield for the communication cable.
If you connect one shield cable to another system, it can deteriorate the transmission and reception quality to cause malfunction.

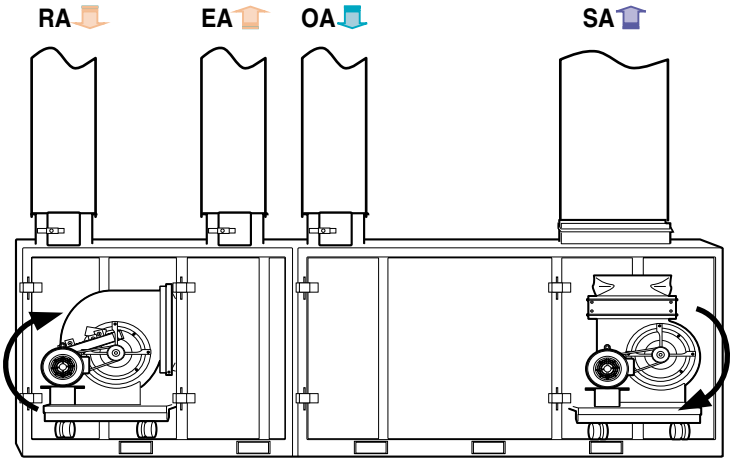
WARNING

- When connecting the power cable, always connect after the ring terminal task. It can cause a fire or burn the electric parts.

Test run

Checkpoint before the test run

1. Set the operating mode of the wired remote controller of CONTROL KIT to 'Fan' and run for 2~3 seconds to check whether the rotating direction of the AHU SA and RA fan is the same as that indicated on the fan.
- If the fan is rotating in reverse direction, recheck the power connection of the R/S/T of motor power supply.

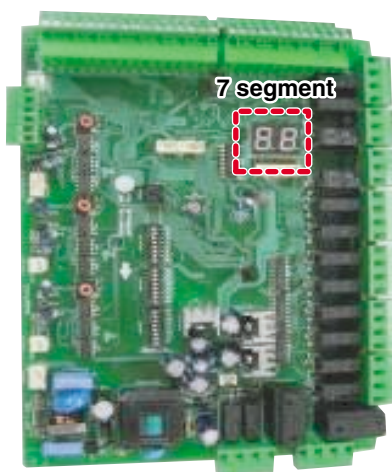
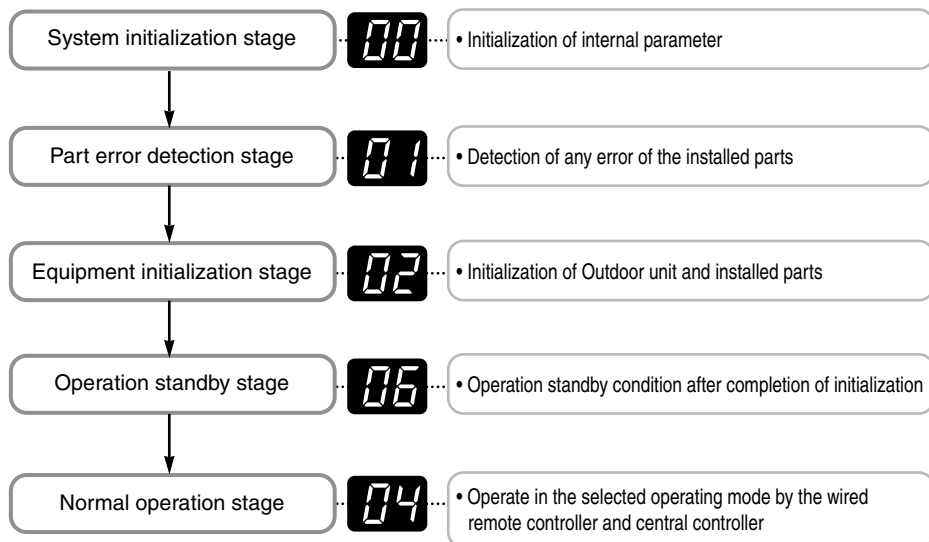


2. If the damper actuator is installed as an option, check whether the dampers are configured to open as follow 10 seconds after the power is connected.

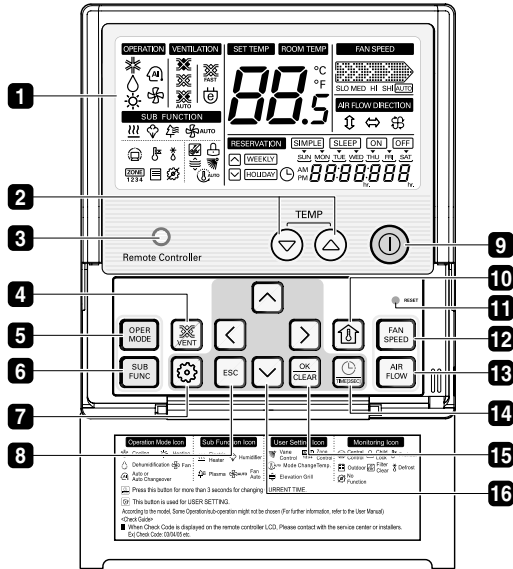
Damper	Location condition
OA damper	Full Close
EA damper	Full Close
Mixing damper	Full Open

If the damper is not configured to operate as shown, adjust the dip switch of the damper actuator to reset the rotating direction.

3. After connecting the power to CONTROL KIT, check whether the 7 segment of AHU controller displays as shown in the following order.
When '6' is displayed on the 7 segment, the unit can be operated.
4. After the power is connected, it requires about 10~15 minutes from system initialization to the operation standby stage.



Wired remote controller



1. Operation display panel
2. Temperature control button
3. Wireless remote controller receiver
- Wireless remote control signal is not received for the AHU wired remote controller.
4. Ventilator button (Not applied in AHU)
5. Operation selection button
6. Additional operation button
7. Function setting button
8. Exit button
9. Run/Stop button
10. Indoor temperature button
11. Reset button
12. Fan level button (Not applied in AHU)
13. Wind direction button (Not applied in AHU)
14. Schedule/Time setting button
15. Set/Cancel button
16. Up/Down/Left/Right button

■ 3, 4, 12 and 13 do not work.

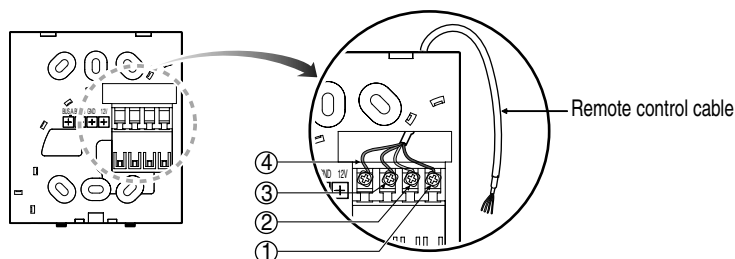
■ 6 Additional operation button can be limited depending on the application of the sensor.

How to install the wired remote controller

1. As shown in the right, connect the remote control cable to the installation board of the wired remote controller.

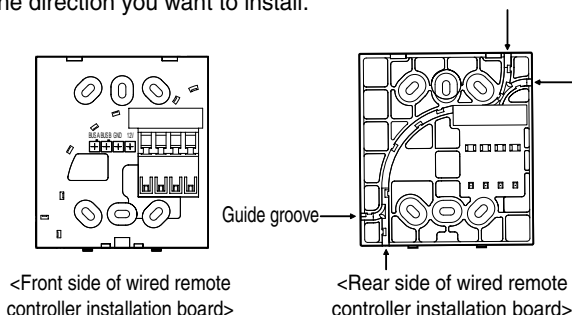
①	12V
②	GND
③	BUS_B
④	BUS_A

* Remote control cable must separately be purchased on site.

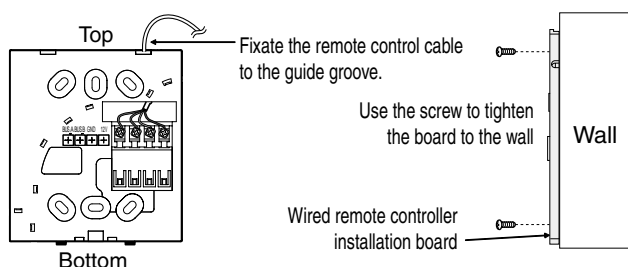


2. After fixing the cable on the guide groove, attach the installation board of the wired remote controller to the location you want.

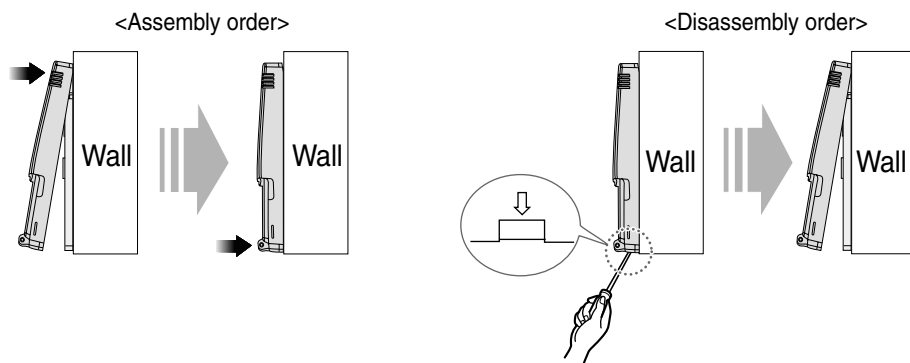
* Before fixing the remote control cable on the guide groove, remove the blocked part of the case toward the direction you want to install.



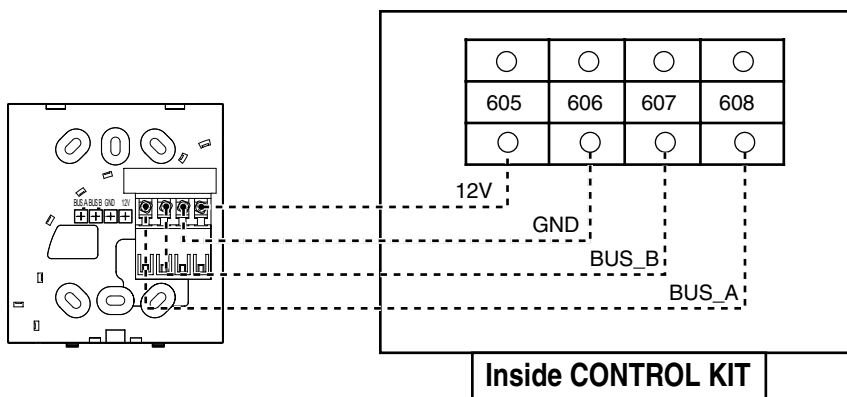
3. After locating the wired remote controller installation board at the location you want to install, tighten the screw to firmly fixate it. (If there is a burial box, install the wired remote controller installation board to fit the burial box.)



4. After fixating the top part of the remote controller to the wired remote controller installation board, press the bottom part to assemble to the board. When separating the remote controller from the board, use the driver as shown in the right picture to insert the driver into the hole marked with the arrow and pull the driver to separate the remote controller.



5. Use the extension cable to connect CONTROL KIT with the remote controller.



6. You can separately purchase the extension cable on site.

* For inquiry related to the purchase of the extension cable, please contact the specialized supplier (Hisys).

CAUTION

- When connecting the cable, please comply with the following.
 - When installing the extension cable, check the direction of the remote control side and CONTROL KIT before installing.
 - If the extension cable is connected in reverse direction, the product may not operate properly.
 - Specification of extension cable: 2547 1007 22# 2 core 4 shield 5 or level above.

Self diagnosis function

Error display

- This function displays the self diagnosis and the type of error if identified.
- For the error display, the applicable code is displayed on the 7 segment LED on the wired remote controller and AHU controller.
- If there are 2 or more errors simultaneously, the codes are displayed in the order of occurrence.
- Once you resolve the error, the error code will disappear.

Error display method

- The first display on the 7 segment display refers to the error code and the second part refers to the location information of the communication PCB address or sensor location. Refer to the following for details.

Error type	Display condition	Example of output	Detail description
Basic error	CH [Error code] 0	CH 3 0	Error #3
Communication PCB error	CH [Error code] [Address]	CH 2 04	Error #2 in communication PCB with address of '#4'
Sensor error	CH [Error code] [Location]	CH 13 02	Air supply temperature sensor error
Outdoor unit error	CH [Error code] [Address]	CH 173 04	Error #173 on the outdoor unit connected to communication PCB with address of '#4'

- ※ The address the communication PCB refers to Rotary switch number on the communication PCB.

Location number	Location name	Applicable sensor type
01	RA	Temperature sensor, Humidity sensor
02	SA	Temperature sensor, Humidity sensor
03	OA	Temperature sensor, Humidity sensor
04	Mixing	Temperature sensor
05	Differential pressure	Differential pressure sensor
06	Static pressure	Static pressure sensor

- ※ The above table shows the information of the attached location by sensor.

Error display (AHU)

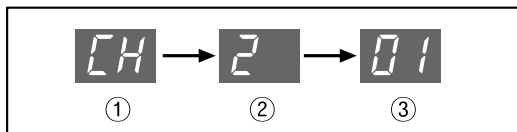
• ‘##’ refers to the address information of the communication PCB.

Display number			Error item	Cause of error	Cause or error
CH	2	##	Temperature sensor error at pipe inlet of indoor unit	Communication PCB Rotary switch number ##	Temperature sensor disconnection or short circuit at pipe inlet of indoor unit
CH	3	00	Communication error between wired remote controller and AHU controller		No communication signal for more than 3 minutes from wired remote controller to the AHU controller
CH	4	##	Communication error between AHU controller and communication PCB	Communication PCB Rotary switch number ##	No communication signal for more than 3 minutes from communication PCB to AHU controller
CH	5	##	Communication error between communication PCB and Outdoor unit	Communication PCB Rotary switch number ##	No communication signal for 5 minutes continuously from communication PCB to outdoor unit
CH	6	##	Temperature sensor error on pipe outlet of indoor unit	Communication PCB Rotary switch number ##	Temperature sensor disconnection or short circuit on pipe outlet of indoor unit
CH	8	00	Emergency operation	-	The operating status of the smoke control mode through smoke detector is displayed
CH	13	01	Temperature sensor error	RA	Temperature sensor (RA/SA/Mixing) disconnection/short circuit/misconnection or when the sensor value is in the error range
		02		SA	
		04		Mixing	
CH	14	01	Humidity sensor error	RA	Humidity sensor (RA/SA/OA) disconnection/short circuit/misconnection or when the sensor value is in the error range
		02		SA	
		03		OA	
CH	15	00	CO ₂ sensor error	-	CO ₂ sensor disconnection/short circuit/misconnection or when the sensor value is in the error range
CH	16	05	Pressure sensor error	Differential pressure	Pressure sensor (Differential pressure, static pressure) disconnection/short circuit/misconnection or when the sensor value is in the error range
		06		Static pressure	
CH	17	01	Air flow sensor error	RA	Air flow sensor (RA, SA) disconnection/short circuit/misconnection or when the sensor value is in the error range
		02		SA	

Example of error

Situation	Error
Pipe inlet temperature sensor error (Communication PCB Rotary switch number: 01)	CH → 2 → 01
Communication error between communication PCB and Outdoor unit (Communication PCB Rotary switch number: 05)	CH → 5 → 05
SA duct Temperature error	CH → 13 → 02
RA duct Humidity error	CH → 14 → 01

Sequence of error



✱ The occurrence of error is displays in the order of ① → ② → ③ on 7 segment.

✱ Refer to page 42 for details of ② and ③.

■ Refer to the MULTI V technical material for details on error code and checkpoints of the outdoor unit.

